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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |  |  |
|---|-------------|----------------------|---------------------|------------------|--|--|
| 10/593,968  | 09/22/2006  | Hiroshi Kiyokawa     | 01197.0284          | 5650             |  |  |
| 22852   | 7590        | 08/18/2009           | EXAMINER            |                  |  |  |
| FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER<br>LLP<br>901 NEW YORK AVENUE, NW<br>WASHINGTON, DC 20001-4413 |             |                      |                     | OH, TAYLOR V     |  |  |
| ART UNIT  |             | PAPER NUMBER         |                     |                  |  |  |
| 1625  |             |                      |                     |                  |  |  |
| MAIL DATE   |             | DELIVERY MODE        |                     |                  |  |  |
| 08/18/2009  |             | PAPER                |                     |                  |  |  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/593,968             | KIYOKAWA ET AL.     |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Taylor Victor Oh       | 1625                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 19 May 2009.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1,2 and 4-12 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,2 and 4-12 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/09,5/09, 7/09</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____                          |

In view of the revised claims in the amendment, the examiner has decided to apply another Non-final rejection.

**The Status of Claims:**

Claims 1-2, and 4-12 are pending.

Claims 1-2, and 4-12 are rejected.

**DETAILED ACTION**

**Priority**

1. It is noted that this application is a 371 of PCTY/JP05/06408(03/25/05), which has a foreign priority document, Japan 2004-089652(03/25/04).

**Drawings**

2. None.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2, 4-5, and 7-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1-2, 4-5, the phrases “the heterocycle”, “heteroatoms”, and “a substituted or unsubstituted heterocyclic group” are recited. These are vague and

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indefinite because there are numerous compounds related to the heterocycle” and “heteroatoms” in the art ; the skilled artisan in the art is unable to figure out which one is closely related to the claimed invention; the examine recommends to specify the generic formula for the heterocycle” and also the types of the heteroatoms suitable for the claimed process. Regarding the term “ substituted”, this is also vague and indefinite because in the absence of the specific moieties intended to effectuate modification by the “substitution” or attachment to the chemical core claimed, the term “substituted” renders the claims in which it appears indefinite in all occurrences wherein applicants fails to articulate by chemical name, structural formula or sufficiently distinct functional language, the particular moieties applicants regards as those which will facilitate substitution, requisite to identifying the composition of matter claimed. An appropriate correction is required.

In claim 6 ,the chemical term “ N-methylaniliner” is recited. This is vague and indefinite because the specification does not elaborate what is meant by the term. An appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

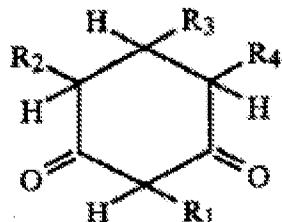
Claims 1-2, 4-5, and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller (US 4,212,823).

Muller discloses the followings (see abstract):

**3-Aminophenols are prepared by dehydrogenation at elevated temperature of 3-aminocyclohexenones. The compounds obtained are valuable intermediates for drugs, dyestuffs and herbicides.**

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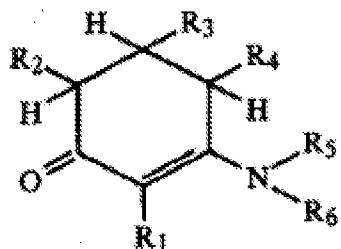
When one mole of a cyclohexanediones



is reacted with one mole of an amine



3-aminocyclohexenones of the formula



are obtained.

In the above formulae the radicals R<sub>1</sub> to R<sub>6</sub>, which may be identical or different, have the following meaning: hydrogen; straight chain, branched or cyclic alkyl groups generally having up to 12 carbon atoms and optionally carrying substituents; aryl groups having from 6 to 14 carbon atoms and optionally being substituted. The radicals R<sub>5</sub> and R<sub>6</sub> may also form together an alkylene group having from 4 to 6 carbon atoms, which may be interrupted by an oxygen or a substituted nitrogen atom.

(see col. 2 ,lines 3-37)

Depending on the type of the aminocyclohexenones used and on the reaction conditions applied, the dehydrogenation is carried out continuously or discontinuously at a temperature in the range of from 130° to 450°

(see col. 4, lines 43-47).

However, the instant invention differs from the prior art in that the claimed starting compound is related to 1,4-cyclohexanedione unlike the prior art compound.

Even so, the claimed starting compound, 1,4-cyclohexanedione, and the prior art compound, 1,3-cyclohexanedione are related as position isomers. It is well established that position isomers are *prima facie* structurally obvious even in the absence of a teaching to modify. The isomer is expected to be prepared by the same method and to have generally the same properties. This expectation is then deemed the motivation for preparing the position isomers. This circumstance has arisen many times. See: *Ex parte Englehardt*, 208 USPQ 343, 349; *In re Mehta*, 146 USPQ 284, 287; *In re Surrey*, 138 USPQ 67; *Ex Parte Ullerot*, 103 USPQ 185; *In re Norris*, 84 USPQ 459; *Ex Parte Naito*, 168 USPQ 437, 439; *Ex parte Allais*, 152 USPQ 66; *In re Wilder*, 166 USPQ 545, 548; *Ex parte Henkel*, 130 USPQ 474; *Ex parte Biel*, 124 USPQ 109; *In re Petrzilka*, 165 USPQ 327; *In re Crownse*, 150 USPQ 554; *In re Fouche*, 169 USPQ 431; *Ex parte Ruddy*, 121 USPQ 427; *In re Wiechert*, 152 USPQ 249, *In re Shetty*, 195 USPQ 753.

For example, “Position isomerism has been used as a tool to obtain new and useful drugs” (*Englehardt*) and “Position isomerism is a fact of close structural similarity” (*Mehta*, emphasis in the original). See also MPEP 2144.09, second paragraph.

Therefore, it would have been obvious to be motivated to employ the 1,4-cyclohexanedione starting compound as an alterative to 1,3-cyclohexanedione in the Muller process because the isomer is expected to be prepared by the same method and to have generally the same properties. It is well thin the purview of the skilled artisan in the art to practice such a modification in the prior art process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on 571-272-0867. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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/Taylor Victor Oh/

Primary Examiner, Art Unit 1625

8/15/09